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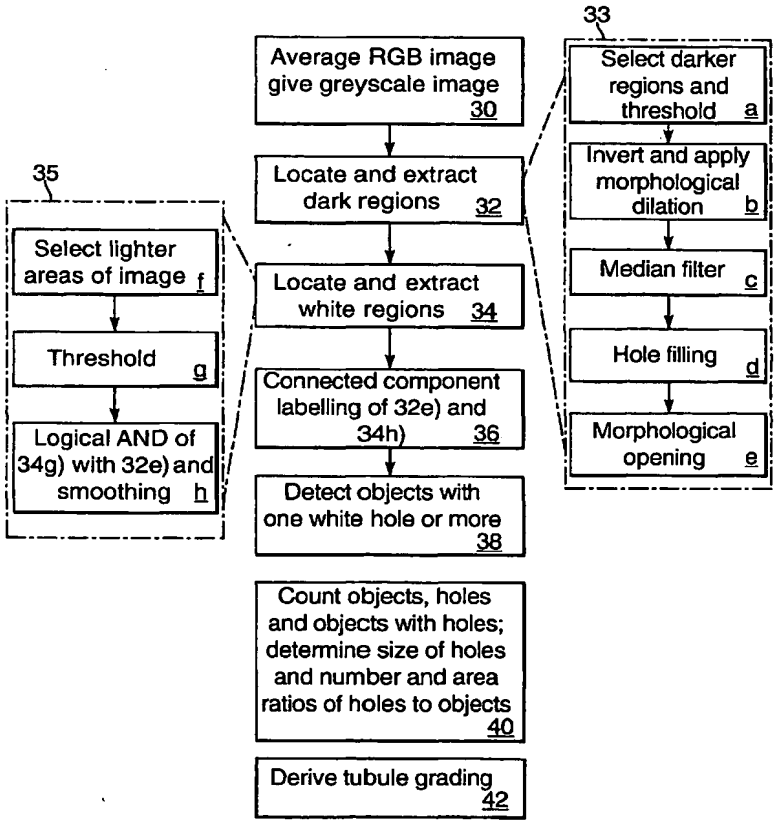
(54) Title: AUTOMATED HISTOLOGICAL GRADING OF TUBULES



(57) Abstract: A method of grading tubules in a first histological slide image (50) derives a second image (60) of objects (61) in the first image (50) with boundary characteristics corresponding to tubules. It also derives a third image (70) of second objects (72) in the first image (50) having pixel value characteristic of fat and holes within tubules. It combines data from the second and third images (60, 70) to identify holes (81) within tubules (61) and determines the relative areas of holes (81) as proportions of their tubules (51) to provide ratios, individual tubule ratios and an overall ratio for all holes and tubules collectively. The number of tubules (51) containing appreciably sized holes (52) is counted. Tubules (51) are graded by thresholding based on individual and overall tubule/hole area ratios, tubule/object proportion, tubule number and number of tubules with appreciably sized holes. Thresholds are derived from image gradation by an appropriate medical expert.

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